

Fellows of the Royal Society, to whom, Sir, if you will be so kind as to communicate them, you will greatly oblige,

S I R,

Your very humble servant, &c.

Woodstock-Street,
April 4, 1761.

John Stephens.

XXIII. *Additional Observations upon some Plates of white Glafs found at Herculanum: In a Letter to Charles Morton, M. D. R. S. S. By J. Nixon, A. M. and F. R. S.*

Dear Sir,

Read April 9,
1761.

IN a paper, which I had the honour to present to this learned Society about * two years ago, I offered my thoughts upon some plates of white glafs found in the ruins of Herculanum. I now beg leave to add some more observations, with a view partly to explain and support what I then delivered, and partly to communicate such new informations, as I have since received, relating to the same subject.

I observed †, upon the authorities produced by Monf. Renaudot ‡, that glafs plates were not applied

* Phil. Transf. Vol. L. Part II.

† Ibid. p. 602.

‡ Mem. de l'Acad. des Inscript. Vol. I.

for magnifying objects in optical experiments, till the beginning of the thirteenth century: but, upon reviewing his dissertation, I find he links the antiquity of that usage a century lower than this. That learned writer adds further, "That with regard to this question, whether the antients made their astronomical observations without telescopes, the affirmative is looked upon as certain; because, if this invention had ever been known before, there is all imaginable reason to believe, that the utility, which would result from it, not only in astronomy, but for several other purposes, would have prevented its being afterwards lost." *Monf. Renaudot* declines entering into this controversy; but observes, that *Mabillon* mentions a manuscript he saw in an abbey in the diocese of Freisingen, wherein *Ptolemy* was represented observing the stars with a * tube, like our modern perspective-glasses. This manuscript is said to have been written in the beginning of the thirteenth century; which date (*says Monf. Renaudot*) is the more remarkable, because plain spectacles, which should seem likely, in the nature of things, to have been invented first, do not appear to have been known till a hundred years after. Then, having produced the evidences, which prove, that this latter discovery was made about the time above-mentioned, he concludes with saying, "that

* *Mabillon* does not mention, that the tube had glasses; neither indeed was that circumstance easily discoverable. Perhaps such tubes were then used only to preserve and direct the sight, or to render it more distinct, by singling out the particular object looked at, and shutting out all the rays reflected from others, whose proximity might have rendered the image less precise.

“ we have nothing of this nature with regard to telescopes.”

The reason of my enlarging upon this article is a passage I have lately met in that learned antiquary, Mr. Rowland, which may seem to contradict the observation produced above. This * author alleges the authority of Hecatæus (apud Diod. Sic. tom. i. p. 159. Ed. Wessel.) for saying, that the Hyperborei, who inhabited an island in the Northern ocean, opposite to the Celtæ, “ could (as if they had the use
“ of telescopes) show the moon very near them, and
“ discover therein mountains, and heaps of rocks,
“ which that instrument only can discover.” That we may distinguish how far Hecatæus is concerned in this passage, it will be proper to give a literal translation of it from the original; viz. “ They say
“ further, that the moon, viewed from this island,
“ appears to be but at a very little distance from the
“ earth, and to have certain protuberances, like land,
“ visible on her surface †.” Now, it may be observed, in the first place, that this phænomenon, if real, may perhaps be explained by the refraction of the moon’s rays in passing through the atmosphere of the earth, which, in an island situated very far north, might be continually charged with an extraordinary quantity of vapours. Or further, as Hecatæus mentions it upon hearsay only, and subjoins some other circumstances in the same chapter relating to this island, which are entirely of a fabulous cast,

* *Mona Antiqua*, p. 76.

† Φασὶ δὲ καὶ τὴν Σελήνην ἐν ταύτης τῆς Νήσου φαίνεσθαι παντελῶς ἐλίγον ἀπέχουσαν τῆς γῆς, καὶ τινὰς Εξοχὰς γεώδεις ἐχουσαν φανεράς.

we may justly question the * truth of the fact; and, consequently, shall not be obliged to maintain the necessary existence of telescopes in those times, in order to account for it.

As it appears †, that neither the lapis specularis, nor glass, was used for windows before Seneca's time; and it cannot be supposed, that the Romans, a people of so refined a taste in other instances, would suffer their apartments to be exposed to the free entrance of winds, &c. it may be reasonably asked, What supplied the place of those materials before? To satisfy this enquiry, it is to be observed, that several other materials are mentioned by ancient writers, as serving the purpose before us; such as thin hides, or ‡ skins, like our parchment, mentioned by Philoponus. Pliny likewise informs us, that the horns of the urus being cut into thin laminæ were || transparent, and supplied, in some measure, the use of our lanterns; and we may probably conclude, from the analogy of things, that they served for window-lights also; especially, as we meet with windows made of horn (corneum specular) in Tertullian, who wrote within less than two hundred years after Pliny.

To these, we may add the vela, made of § hair-cloth, or pieces of hides |||, which Pitiscus (upon the

* Vide Wesseling, not. in loc.

† Phil. Transf. Vol. L. Part II. p. 605.

‡ Apud Salm. Exerc. Plin. T. ii. p. 1095. Ed. Par.

|| Plin. Nat. Hist. L. xi. c. 37. In laminas secta translucent atque etiam lumen inclusum latius fundunt. Apud Salmas. Plin. Ex. T. i. p. 260.

§ Vela cilicia. Ulpian apud Le Antichita di Ercolano esposte, p. 268.

||| Fabretti. Ibid. p. 256. The makers of these vela, Σχινοποιῖς. Act. 18. 3. ibid.

authority of Ulpian) says, were in use before the invention of windows of the *lapis specularis*, or * glass. Ulpian indeed, in the passage Pitiscus refers to, only mentions them as subsisting together with the † latter : but it seems obvious to conclude, that the *vela*, being an invention less perfect and commodious, were prior in time to the *specularia*, which are to be regarded as a subsequent improvement of the former. Notwithstanding this, the *vela* still continued in question, even after the introduction of window-fences of stone or glass, and served as canopies, or ‡ umbrellas, to keep the sun from places exposed to the open air ; as the others secured the inner parts of the house from cold, &c.

I took notice || of the natural connection there seemed to subsist between the using of plates of glass for adorning the inside of apartments in antient times, and the employing them for introducing light into those apartments. This observation has been supported by a letter I received from my learned correspondent, Abbate Venuti, at Rome, dated December 30, 1759, wherein he informs me, that he had lately read, in some anecdotes of Cardinal Maximi, “ That as they were digging among the ruins on
“ mount Cælius, in the last century, they found a
“ room belonging to an antique dwelling-house, that

* Pitiscus, Tit. *Specular*.

† *Specularia et vela, quæ frigoris causâ et imbrium in domo sunt. Ibid.*

‡ *Specularia-vela, quæ frigoris, vel umbræ causâ, in domo sunt. Ulpian apud Le Antich. See these vela exhibited, Tavol. vi. & 49. ibid.*

|| *Phil. Transf. Vol. L. Part II. p. 606.*

“ had all its sides within ornamented with plates of
 “ glass, some of them tinged with various colours,
 “ others of their own natural hue, which was dusky,
 “ occasioned by the thickness of the mass, of which
 “ they consisted *. There were likewise in the same
 “ apartment, window-frames composed of marble,
 “ and glazed with laminæ of glass.” But as the Ab-
 bate did not take upon himself to ascertain the real
 age of this building, I shall not pretend to lay any
 greater stress upon this discovery, than I did upon
 the observation, for the sake of which I produced it,
 for proving the point I had then in view, viz. that
 the usage of glass for windows was (probably) nearly
 of the same antiquity with that of adorning houses
 with it.

I informed the Society †, that I had not been able
 to trace up the constructing of windows with plates
 of glass, such as these found at Herculaneum, higher
 than two hundred years short of the overthrow of that
 city: but, some time after, a passage in Baronius was
 suggested to me, which seemed to carry the antiquity
 of this practice much higher, even to the 42d year
 of the Christian æra. It was a quotation ‡ from
 Philo Judæus, wherein he gives an account of C. Ca-

* Nam cum laminæ crassioris essent molis, colorem opacum
 nigrantemque reddebant. Venuti. This would be the effect of
 the antient glass, if it was of a coarser composition than ours:
 and that it was so in fact, a very eminent critic, both in sacred
 and profane literature, thinks, may be collected from St. Paul's
 words, 1 Cor. xiii. 12. “ Now we see, but through a glass
 “ darkly.”

† Philos. Transf. Vol. L. Part II. p. 608.

‡ Baron. Annal. Eccles. T. i. A. C. 42. p. 335. Col. Agrip.
 1621.

figula's reception of the Jewish deputies. " When
 " (says he) we had entered upon our harangue, the
 " Emperor perceiving, that some things of no small
 " weight were urged, and that others no less strong
 " were likely to be alleged, he broke off the audi-
 " ence, and hurried away, with great precipitation,
 " into a spacious hall: there walking * about, he
 " commanded the windows to be shut on every side,
 " consisting of white glass, resembling plates of the
 " lapis specularis, which admit the light, but exclude
 " the wind and the sun."

This authority indeed, if genuine, would have
 fully answered my purpose; but, upon consulting
 the text of Philo, I was fully convinced, that the
 Cardinal's translation of the latter part of this passage,
 which alone affects the present inquiry, was directly
 contrary to the original; which imports, that the
 windows in the imperial apartment consisted of la-
 minæ of stone, almost as transparent as glass †.

I cannot leave this passage, without taking notice
 of that conclusion of it, viz. " That the windows of
 " the lapis specularis admitted the light, but excluded
 " the violent heat of the sun." This seems to prove,

* Obambulantque jussit claudi fenestras vitro candido simili la-
 pidibus specularibus, quibus lux admittitur, ventus et sol excludit-
 tur. This version of Baronius is the same verbatim with that in
 the editions of Geneva. 1613, Lut. Par. 1640, and Francf. 1691.

† Περιεῖπαι τὰς ἐν κύκλῳ θυρίδας ἀναληφθῆναι τοῖς ὕδασι λευκῇ
 διαφανέσι παραπλησίως λίθοις, οἱ τὸ μὲν ὥς ἔκ ἐμπιδί-
 ζουσιν, ἀνεμὸν δὲ εἰσγχεῖν, καὶ τὸν ἀπ' ἡλίου φλογμὸν. Ed. Lut. 1640. & Franc. 1691.
 Since the writing of this, Dr. Birch has informed me, that Dr.
 Mangey has translated this passage agreeably to my idea, viz. La-
 pidibus haud minus pellucidis quam vitro candido.

that the specularia in Martial were made of the same materials, if this reading adopted by Salmasius, &c. is to be followed; viz.

Specularia puras
Admittunt luces, et sine sole diem.
L. viii. Epig. 14.

But other copies have it

Specularia pueros
Admittunt soles, et sine face diem *.

This reading is espoused by Colleſſus, the Dauphin editor, who further explains (pueros) by (nitidos); and yet, in his notes, tells us, that these specularia were of stone or talc; which they could not have been, consistently with Philo's account, but must have been of glass; and consequently, we should have an evidence in Martial for the usage of glass in windows, as early as the first century: for that poet lived in Rome from A. C. 71 to 100.

But perhaps these (seemingly) contradictory readings of this passage may be reconciled, as to their sense, by interpreting (puras luces) in the one, and (pueros soles) in the other, to mean the mild light and warmth of the sun, which remained after the greater part of its rays had been either reflected by the exterior surface, or absorbed within the interior pores of the stone; or, as Milton expresses it,

The sun shorn of his beams.

* Ed. Ingolſt. 1602. Pitiscus Specular. &c.

Upon this hypothesis, fine face will signify the exclusion, not of the rain, dust, &c. as it is explained by the commentators, who follow this reading; but that of the gross body of the sun's rays; and so will coincide with fine sole diem, in the other copies.

As I quoted * Lactantius (De Officio Dei, c. viii.) to prove the use of glass in windows in his time, viz. the third century, I hold myself obliged to take notice of the censure, which Cortius and Longolius pass upon this father, and which is as far from being candid, as the authorities they appeal to are from proving it true. These gentlemen, in their notes on Pliny (L. ii. Ep. 17.), boldly pronounce the father mistaken (peccavit Lactantius) with regard to the passage I produced from him: and they support this charge, by referring to Lipsius on Seneca de Prov. C. iv. & Epist. 90. and to Pliny Hist. Nat. L. xxxvi. c. 26. Now, whoever consults Lipsius on the places here referred to by these editors, will find nothing therein, but observations relating to the lapis specularis, viz. the reason of its name; the countries where it was found; its use in window-fences, for dining-rooms, bed-chambers, baths, porticos, and even in orchards and gardens. This is what nobody ever denied, and what even Lactantius himself intimates, in the † passage before us. How, therefore, this can affect that father's testimony, relating to the use of glass in windows, exceeds my imagination to conceive. And

* Phil. Transf. Vol. L. Part II. p. 608.

† Manifestius est, mentem esse, quæ ea, quæ sunt opposita, transpiciat, quasi per fenestras lucente vitro, aut lapide speculari obductas.

as for Pliny, I suppose it will readily be allowed me, that no writer, how respectable soever his authority may be, can possibly prove another, who lived two hundred years after him, mistaken, when he alludes to the practice of his own times.

As I hope the evidence is now undeniable, which I produced in my dissertation, to prove the use of glass in windows to have been as early as the third century (not to mention the probable reasons there offered to shew, that it might have subsisted some ages before), it may not be unacceptable to the curious in antiquity, to observe the slow progress this very commodious invention made in travelling towards the west; since it appears, by our historians *, that it did not reach our island till the seventh century; when it was brought hither from France, either by Benedict abbot of Winal, or Wilfrid archbishop of York; as † lanthorns of horn were introduced by King Alfred, about the same time, viz. 680.

Having now proposed all I had to offer, relating to the several uses of plates of glass, already mentioned in my essay, I beg the Society's indulgence to permit me to subjoin two others, which I have met with since that communication.

The first of these was suggested to me by my (late) worthy friend Smart Lethieullier, Esq; who, last winter at Bath, informed me, that he had in his collection an urn, of a quadrangular figure, which

* Simon Dunelm. Hist. Ang. Script. p. 92. Stubbs Act. Pont. Ebor. Hist. Ang. Script.

† Stavesby's Hist. of Churches, p. 103.

had been divided into two equal parts by a plate of glass, the vestiges of which were still remaining. He was of opinion, that the cells made by this partition contained the remains of some pair, eminent either for their conjugal affection, or some of the other connections of social life. This conjecture, highly probable in itself, is farther confirmed by similar examples in antiquity. Thus we find in Montfaucon * the figure of a square urn, wherein were contained the ashes of a man and his wife, as appears by the inscription upon it. Another urn is represented (Plate LVII.), which held the ashes of a mother and her daughter. To which we may add a third (Plate LV.), covered with a square flat tablet of stone, on which were three inscriptions, signifying, that the remains of three persons, whose relation to each other is not specified, were inclosed therein.

The other instance was transmitted to me by the Abbate Venuti, in a letter from Rome, dated September 27, 1759. viz. " That, in digging up some
 " ruins in that city a few years ago, there was found
 " an antient picture painted on marble, and covered
 " with a plate of white glass, like those used in our
 " times for that purpose, only somewhat thicker.
 " The picture expressed a lady's head, and was of a
 " very elegant composition." From this last circumstance, the Abbate infers, " that it could not be the production of any later age;" meaning (I presume) any period between the decay of good painting among the antients, and the revival of it among

* Antiq. Expliq. Vol. V. p. 1. Pl. 34. Ed. Par.

the moderns. He further assures me, that he saw this picture, which (together with its cover) was deposited in the cabinet of the Marquis Capponi at Rome.

The circumstance of this piece being painted on marble, naturally leads our thoughts up to the age of the fragments of glass, which occasioned my dissertation, viz. to the overthrow of Herculaneum, out of whose ruins four pictures (among many others) have been found painted on the same materials. There is a passage in Pliny *, which has been thought to carry up this manner of painting as high as to the times of Claudius, who began to reign A. C. 41. But I am humbly of opinion, that *lapidem pingere*, in this place, does not mean painting on stone or marble, but only the staining them with artificial colours; as the remaining part of the sentence relates to the inlaying of pieces of marble of various tints, where the original veins were defective, either in variety or beauty: not that I think it at all improbable, at the same time, that this species of painting might be as antient as the epocha mentioned above, viz. the reign of Claudius; because it actually subsisted in the time of Pliny, which must reach up to that æra; for the four paintings referred to in the beginning of this paragraph, as done in the same manner, were found in the ruins of a city (viz.

* *Cæpimus et lapidem pingere. Hoc Claudii principatu inventum. Neronis vero maculas, quæ non essent, in crustis inferendo unitatem variare, ut ovatus esset Numidicus, ut purpurâ distingueretur Sinnadicus, qualiter illos, nasci optarent deliciae.* Hist. Nat. Lib. xxxv. c. 1.

Herculaneum), in whose catastrophe that writer lost his life.

I am,

S I R,

Your most obedient,
humble servant,

London, Feb. 3, 1761.

J. Nixon.

XXIV. *A Description of the Cepphus: In a Letter from D. Lysons, M. D. to Robert More, Esq; F. R. S.*

S I R,

All-souls Coll. Oct. 17, 1760.

Read April 16,
1761.

TO save you the trouble of taking an account of the bird I sent you, I have now taken the liberty to trouble you with the inclosed description, which is pretty near, though, perhaps, not quite exact. Ray, in Wiltoughby's ornithology, says, this bird is yet to us unknown; and takes his description of it from Aldrovandus, who says, it was not described by any author before his time, that he knows of.

The bird before us is, I think, the cephus of Aldrovandus, though it does not agree in all points: perhaps, that he saw, might be a male, this a female. In his, the sides of the mandibles were of a dusky red, in this not. The eyes of his were partly red,
which